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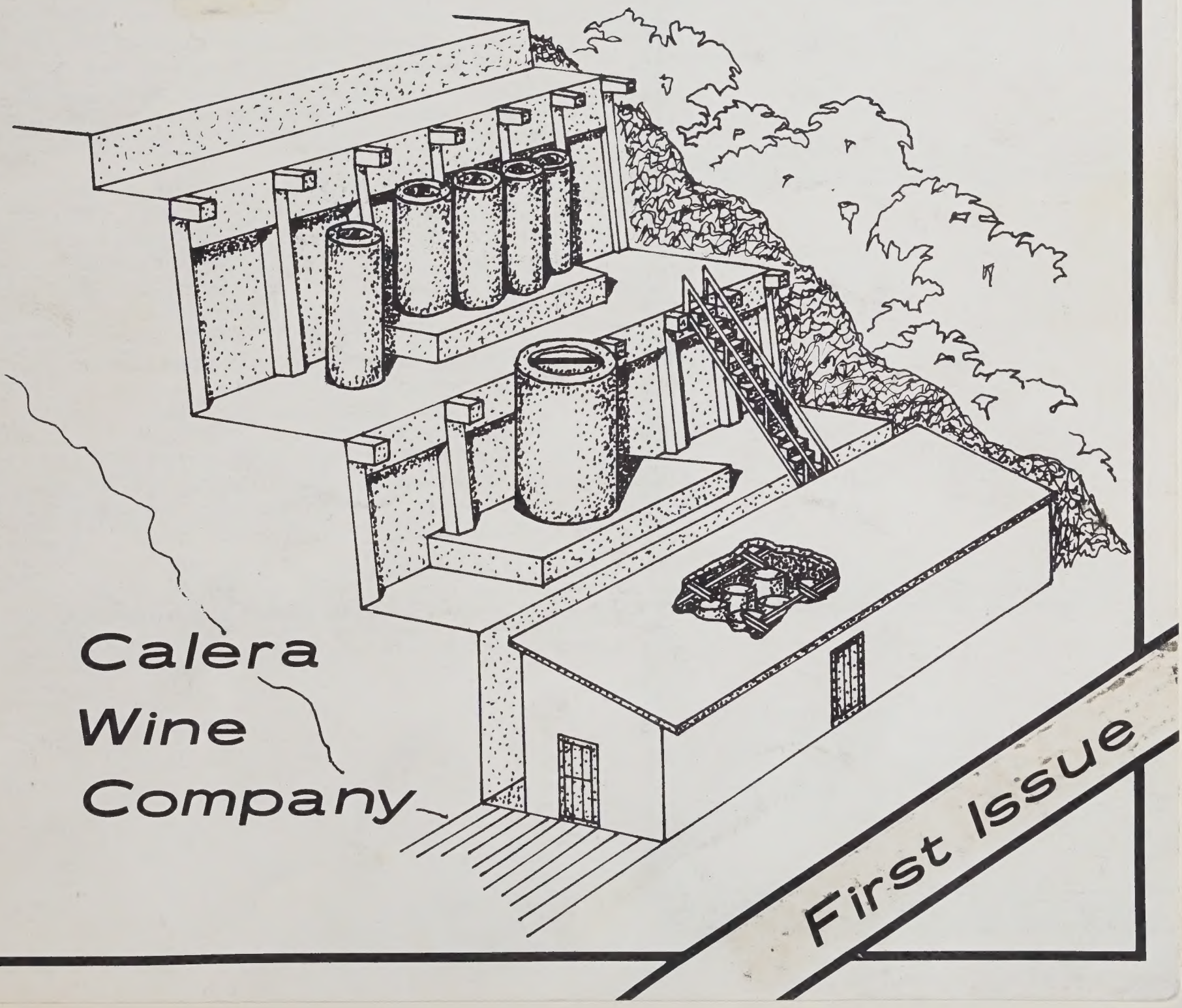
The Practical Winery



Calera
Wine
Company

First Issue

The Practical Winery

THE PRODUCERS' ADVOCATE

APRIL-MAY 1980
VOLUME 1, NO.1

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Cover: Calera Wine Company drawn by Clyde Cornell, a student of arcitecture who drew this one out of friendship. Interview on page 4.

Dear Reader;

At the recent Wine Grape Day at Davis we heard the per capita wine consumption would grow from the current 2 gallons to 4 gallons per year by 1990. The percentages of red and white were a matter of debate, but the over all picture is excellent for the industry. With the growing number of wineries, winemakers and the expansion of the support industries, we felt the need for an honest and useful information exchange.

For those of you looking for the Equipment Review, I didn't feel I had enough input on any one piece, but look for reviews in the upcoming issues.

We are not 100% pleased with this issue; the interviews are with two interesting men of divergent opinions, both right, the reducing sugar analysis is excellent and the equipment articles useful but we look forward to addressing more technical subjects, though not to the point of obscurity.

To the many who have subscribed we thank you, and to those who haven't we look forward to your support. I also thank the advertisers who stuck their necks out to support an unknown.

Tony Norskog

Tony Norskog

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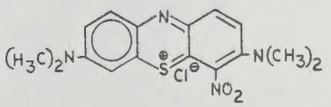

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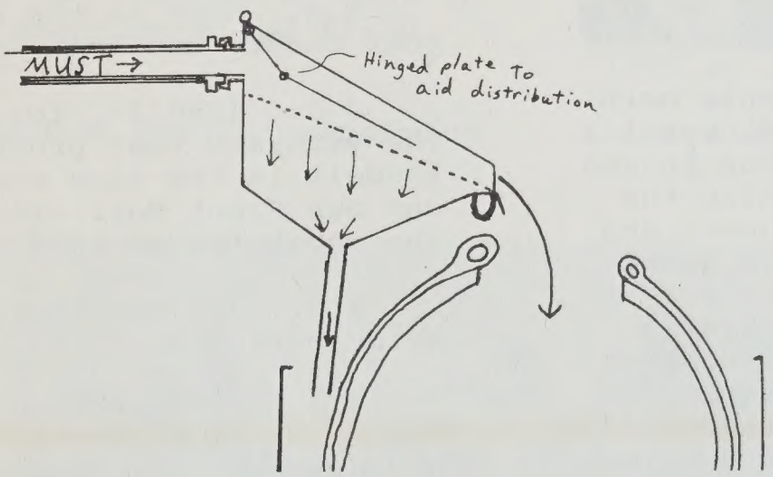

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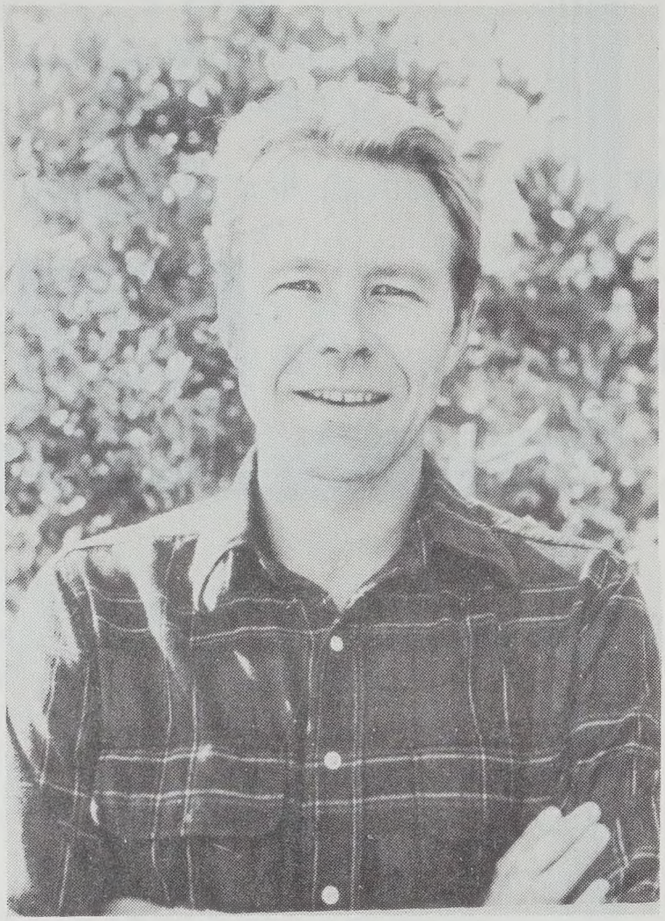


Josh Jensen, California born and Oxford-Yale educated, spent a couple of harvests working in the Cote D'Or, France, learning the local production techniques, and beliefs. Armed with this knowledge and a vineyard two years in the finding, and five years in development, Josh is now nearing his goal of making a superior Pinot Noir; his reputation thus far is built on fine Zinfandels.

Practical Winery. One of your most unusual and best known wines is your '76 Zinfandel Essence, where did the grapes for that wine come from?

Josh Jensen. From my neighbors place on Limekiln Road, a dry farm-vineyard, a very picturesque place. That year '76, we had just a disastrous rainstorm. It was a drought year and it didn't rain when it was supposed to, then it rained like hell when it wasn't supposed to. It rained all over California, but when Napa got one inch, we had 3½ inches, followed by a full week of cloudy skies. It drizzled, fog, and soon we had quite a bit of botritus. It was a year during which the grapes were really late for some reason. I believe it was the 15th of September and the grapes were only at 18 brix, and it was going to be real close anyway. So all the rain went into the grapes and knocked the sugar down to 16 and I just said "Write off". Days later we picked the grapes at 37 degrees brix. When we made the wine we didn't know what we had, we just scrached our heads and said what in the world is this?

P.W. What is the residual sugar of that wine?

J.J. It has 9% residual sugar.

P.W. What is the elevation of your winery and this vineyard?

J.J. 1200 ft. for our winery. The vineyard that produced the Zin fandels is the same elevation, and our own Pinot Noir vineyard is in the mountains at 2200 ft.

P.W. Did the rain catch you this year?

J.J. I understand up north it was really a mess this year;some growers had their Cabernet rot on the vine, but down here it started to rain just as we brought in our last load of Zinfandel.

P.W. At what sugar?

J.J. Well its 14% alcohol. We were getting much lower sugar readings at the crusher, an average of 22.4 brix, but they soaked out to much more than that. It was funny this year, I talked with other winemakers about this and they said it surprised them also. Like our Templeton grapes came in this year at what we thought was about 21.5 and the wine is 13.7 alchol,

how do you account for that? To the eye there was not enough raisining. This was our 5th crush and we've done Zin every year; I'm kind of used to figuring what the alcohol will be by the sugar at the crusher plus some kind of fudge factor, but this year really suprised me, as we have a full degree more alcohol in every wine.

P.W. Perhaps you have a magic yeast, are you innoculating with a cultured yeast?

J.J. No, we go with the natural yeast

P.W. Tell me about your Pinot Noir vineyard.

J.J. Our first real crop was in '78, one ton, and seven tons in '79 but we are aiming for 25-30 tons in '80.

P.W. Sounds like an expensive low yield.

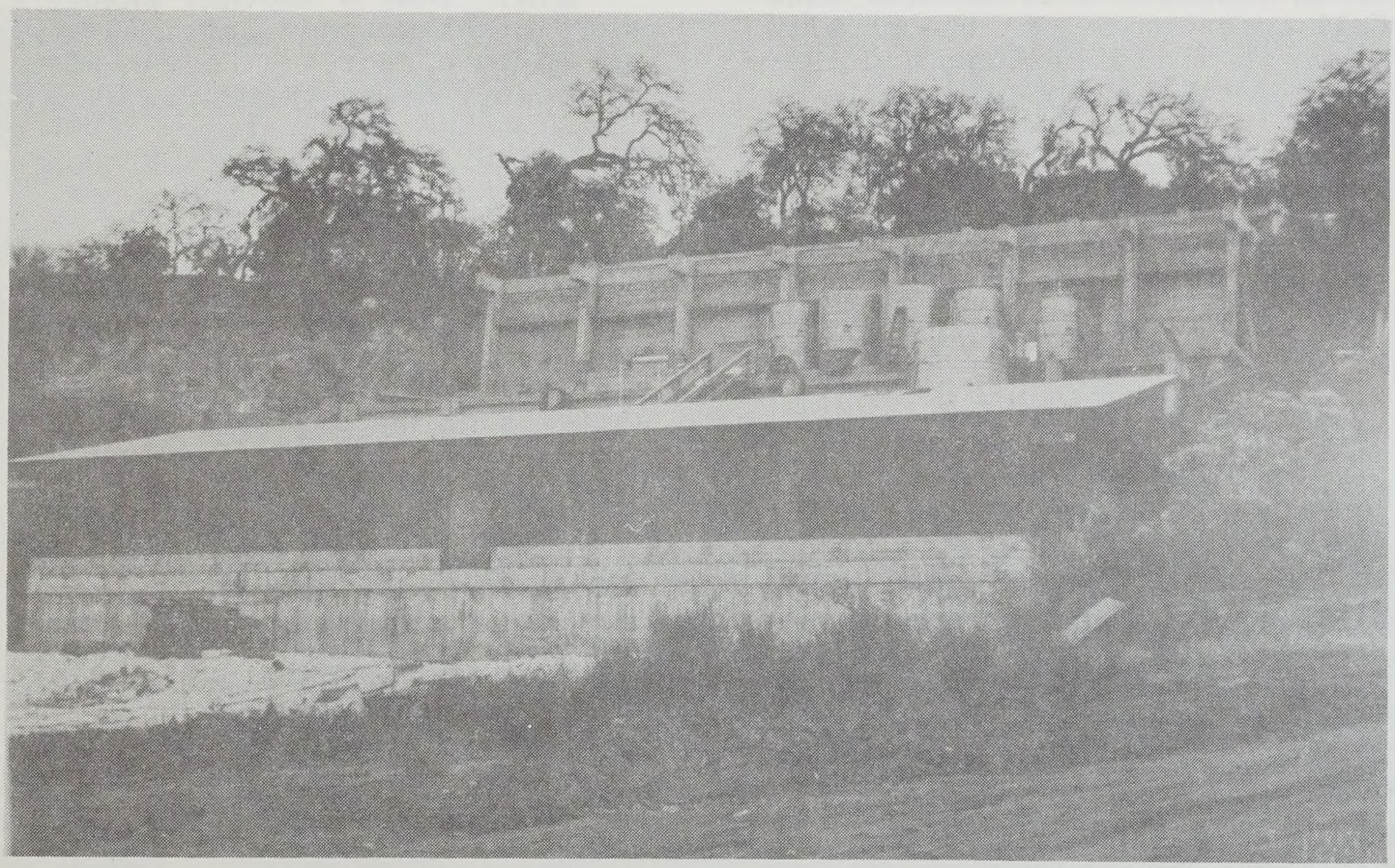
J.J. That's 24 acres in their fifth leaf but we couldn't water much in the drought years. Its drip irrigation from a shallow well It's also a real hard thing to find somebody to live alone up in the hills and work by themselves in a vineyard all day long. Guys come down and say "Oh yes, I love to work alone up in the clean air" and everything and then they quit after 3 months.

P.W. I notice you have no large wood tanks.

J.J. No tanks, all our aging is done in small wood like the Burgundians.

P.W. Hence the Pinot Noir.

J.J. Oh yes, thats why we planted Pinot Noir. I spent 2 years looking for the land. I tried to find soil like Burgundy which is basically a limestone based soil, and in '74 I bought this land and



Calera Winery (Calera is Spanish for limekiln) is currently five levels and will have more added with total gravity flow the goal.

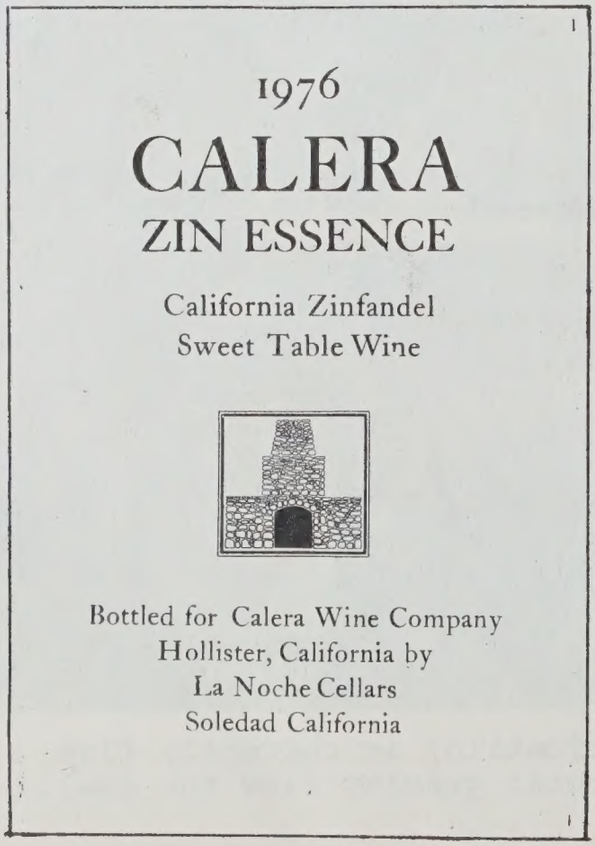
planted an acre. We spent the fall of '74 clearing the land, subsoiling and getting the irrigation system designed and built. In the spring of '75 we planted the main 23 acres and then it wasn't until '77 that we crushed at our own winery. In '75 and '76 we crushed at Chalone winery which is 18 miles south of us in the same mountains

P.W. What intrested you in Pinot Noir?

J.J. Well, I picked grapes in Burgundy in 1970 and '71 and spent a lot of time talking to winemakers in Burgundy.

P.W. Why would you say California hasn't made a La Tâche or Richebourg?

J.J. Soil, California is basically granitic soil. On the first page of the text book of burgundian wine making it says that Pinot Noir needs limestone, Calcarious soil. It goes on to say if you grow Pinot Noir on granitic soil it will make a dull coarse wine, so the problem becomes to find limestone, and there is very little of it. Normally it will be in places where you can not grow anything, a cliff or a canyon.



P.W. Or too hot?

J.J. I never found one that was too hot. There's one thats too windy up by Fairfield, and there's some up in Trinity County where it's too cold.

P.W. Have you found any California Pinot Noir you admire?

J.J. Oh yes, there are some, but ours is the best. There's none that I like as much as our '78 and '79 which are in the barrel now.

P.W. Have you tasted the Carneros Creek selections?

J.J. I tasted the new one which I thought was the best, and really quite a nice wine. Frank Mahoney and I have agreed to disagree; I keep saying it's soil and he keeps saying it's climate.

P.W. Maybe you could explain to me the difference between the various clones of Pinot Noir.

J.J. That's another thing where Frank Mahoney and I have agreed to disagree. He's a real clone guy, doing the U.C. Davis 36 clone, 2 vines each study, 50 ml of each wine. I just don't attach that much importance to clones. Part of our vineyard is said to originate from the budwood of la Romanee Conti, and another block is from a nursery in St. Helena. So now it looks as though the vineyard from the standard St. Helena stuff is going to make our best wine, based on the 2 years of experience.

P.W. You once said malo-lactic fermentation is the key.

J.J. Yes for our being able to make wines without filtration. If we can't get a wine to go through malo-lactic then we have to filter it and it's not as dark or flavorful as it could have been.

P.W. Do you have any problems with high pH in your Pinot Noir as much of the Central Coast is having?

J.J. Yes, our's are usually pH 3.6, 3.7 before malolactic.

P.W. Yes, thats what most of the Central Coast is experiencing, do you have any thoughts on that?

J.J. Well, you know in Burgundy even in good years the quality producers pick at about 19 brix and then bring their wines up to 13% alcohol by the addition of a lot of sugar. They all do this, I know them. They pick their wines at 19 brix and 3.3 pH.

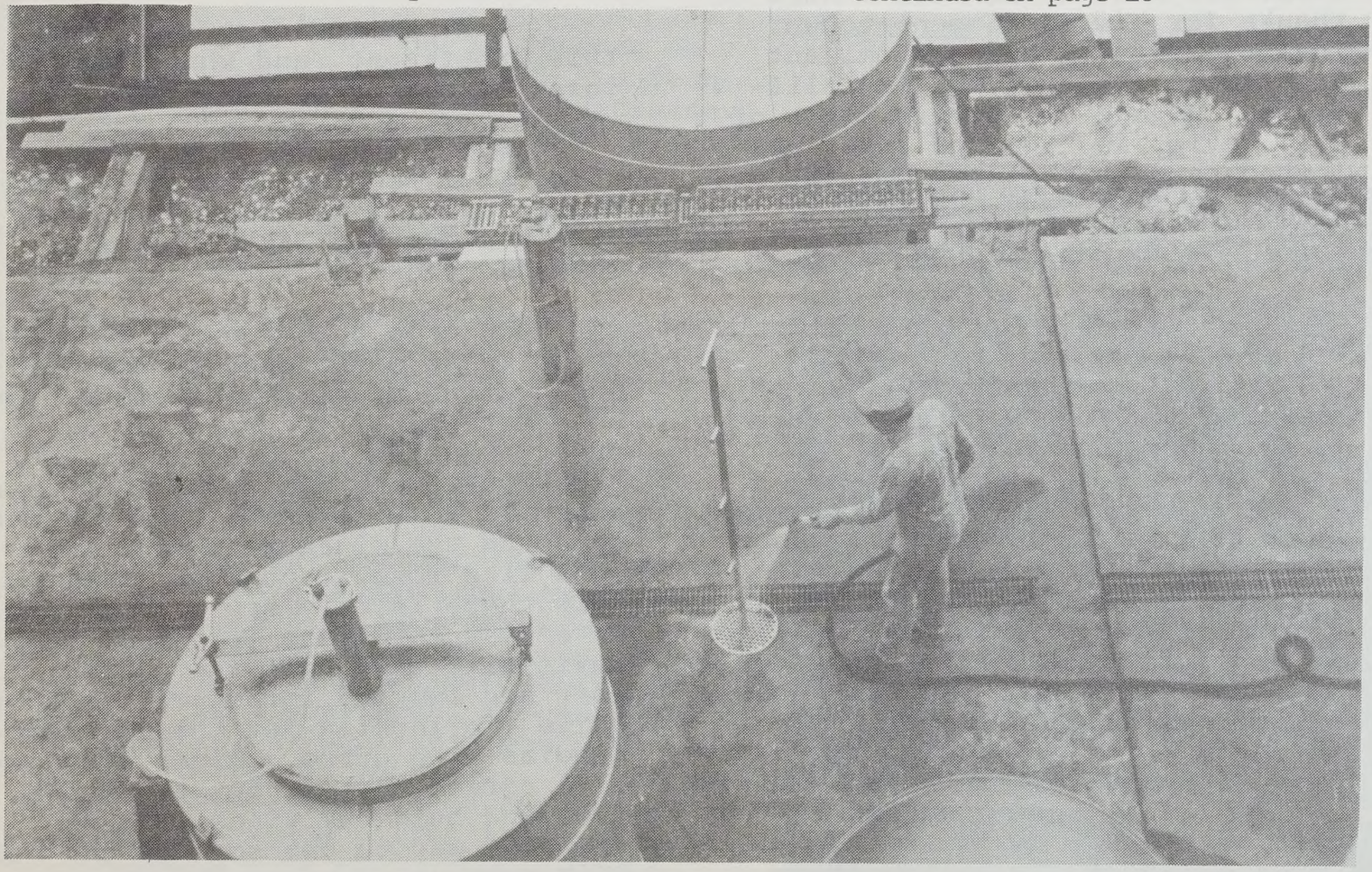
P.W. Even if they are allowed the sun for further ripening?

J.J. Yes, well Romanee Conti always likes a very sweet grape, so they are the last people to pick on the Cote D'Or, but others, whom I consider good winemakers don't like that late harvest quality. So they pick them at low pH's and very high malic acid. Our normal level of malic acid when we pick at 23.5 is, after fermentation, about 0.2 or 250 mg/100ml, while Zinfandel is normally 100-200mg/100ml with similar ripeness. In Burgundy, computing backward after malolactic fermentation, they have to have levels of 500-550 mg/ml , double what we have. So I think it's very obvious that the reason they have low pH wines is that they pick them green, at 19 brix and chaptalize to bring them up. It's conceivable one of the quality factors is that they have this huge malolactic fermentation with all that malic acid burned up over a long period of time.

P.W. Do they hasten the malolactic by heating?

J.J. Many of the top producers had heating coils in certain compartments or sections in their cellars where they heated the young wines. Romanee Conti at that time was doing it, but they have since stopped and are going back to the

continued on page 18



Josh Jensen washing off his punch. He has come a long way from his typewriter when he was a restaurant critic for the S.F. Chronicle.

Francis Mahoney, as with most top quality winemakers, does the majority of his cellar work personally. A native San Franciscan, he is another devotee to the Burgundian-style wines.

Most of us are familiar with the fine Carneros Creek Zinfandels and Cabernets, but their Pinot Noir is under such demand they are actually selling futures of it. All of us intrested in Pinot Noir owe winemaker Francis Mahoney a word of thanks for his commitment to an investigation of the predominant Pinot Noir clones grown in California. He and Dr. Curtis Alley of U.C. Davis, in 1975 and 1976, collected samples of budwood from 20 major Pinot Noir vineyards, and Carneros Creek is currently maintaining a test plot of 60 vines per clone.

Practical Winery. Why is this area of the Carneros District producing such fine grapes?

Francis Mahoney. Well, there are a couple of factors, this used to be an inland sea and there is quite a bit or rock in the soil offering excellent drainage. If you walk around the slope here you will find places with no soil showing, just rock.

P.W. How important is limestone to Pinot Noir grape quality?

F.M. There is no limestone within 50 miles of here. Probably more important is the climate. We get cool afternoons here which cuts the malic respiration, and gives us quite high malic acid percentages in the must. We generally pick the grapes at 9.5 to 9.6 total acid and a sugar of 22.5 brix.

P.W. How did you get into this experiment, and what early observations have you made?

F.M. I got into this clone thing from reading the older literature, and I felt someone should take a close look at it. Now I see some plant differences, leaf size, grape color, though we didn't get much crop this year, but I think the biggest difference is the various degrees of virus infection. Some are getting red leaves at 18 or 19 sugar and ripening due to desication, while the heat treated "clean" clone is so vigorous it has too much crop and the wines made from this look like rose. You know in Pinot Noir there is only one pigment and it's easy to dilute it. Next year Davis will take half the grapes; they are looking for trace elements while I'm looking for the best Burgundian wine grape. After 10 years I've agreed to tear out the whole plot and burn the vines. It was the only way to get some of the budwood from the growers who thought they had the best clone.

P.W. Have you found any Pinot Noir with unusually high pH in relationship to their acid?

F.M. The high pH's we've encountered were from older vines, grapes we bought, up to pH 4.0, yet they were still very black and are aging well. I think this might be affected by soil type, but really don't know.

P.W. Are you using a cultured yeast?

F.M. Oh yes, I tried going without it in '74 and a tank stopped at about 9 sugar. You could really smell the V.A. so now we crush and innoculate into these shallow 4200 gallon open top fermenters. This is an odd year, here it is february and still there is a little primary fermentation going on.

P.W. How about stems, are you adding any?

F.M. Yes, but it depends on the year and grape quality how much I add. The stem character decreases with time in wood, they seem to react with wood tannins.

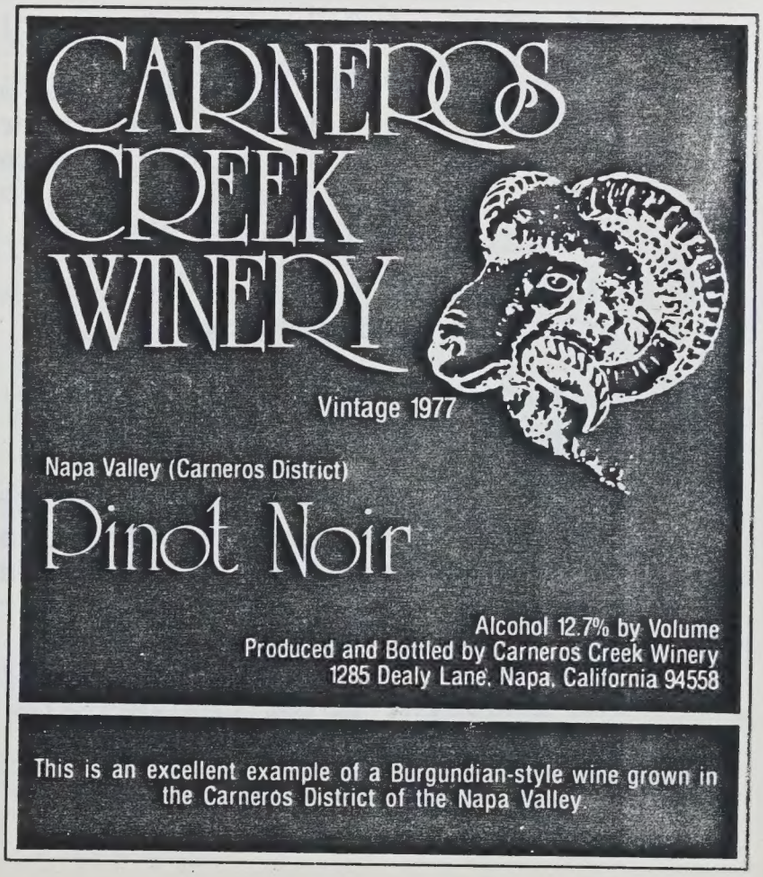
P.W. What are your thoughts on filtration of this variety?

F.M. We are doing a rough filtration onto the bottle, to take out bits of wood or whatever. I don't think it affects the wine much.

P.W. Are you looking to any major changes in your techniques?

F.M. No, I think the mechanics are correct, the physical handling bit, but it's to soon to show a discernable style. The vines are young, techniques slowly being refined; I'm convinced, if you want to make good Pinot Noir you have to grow the grapes yourself. You know we're selling futures on the Pinot Noir now, I don't like it much; if something goes wrong people could get hurt, but we've been lucky so far.

Carneros Creek Winery, established in 1971 is currently producing in the neighborhood of 12,000 cases. and individually identifies their vineyards on the label.


CARNEROS CREEK WINERY
Vintage 1977
Napa Valley (Carneros District)
Pinot Noir
Alcohol 12.7% by Volume
Produced and Bottled by Carneros Creek Winery
1285 Dealy Lane, Napa, California 94558
This is an excellent example of a Burgundian-style wine grown in the Carneros District of the Napa Valley.

The Gold Coast Procedure for Reducing Sugar

The following assay is used extensively in Europe but in only a few American wineries due to it's former unavailability. It's superiorities to the Lane and Eynon analysis are it's speed (7-10 min. and faster if overlapped), accuracy to ± 0.01% R.S., and not having to titrate a hot solution. It can be set up for under $100 in equipment and after running it a few times you will get impressive reproducability day to day. The drawback is that the maximum sugar it can be used with is 2.8 percent so samples with higher sugar need be accurately diluted.

Procedure

1. Pipet exactly 10 ml of Solution #1 into a 250 ml Erlenmeyer flask. Add 5 ml of Solution #2 and 2 ml of the wine, plus 3 boiling stones or beads.

2. Run a deionized H_2O blank at the same time.

3. Put on a pre-heated electric burner and boil for only 1.5 minutes. Solution should turn red-brown for high sugar (2.5-2.8% R.S.) or deep-blue for low sugar.

4. Then place the flask in cold water until cool, approximatly 1.5 minutes.

5. Remove and let sit for 3 minutes or until it comes to approximate room temperature. One shouldn't leave it too long.

6. Add 10 ml of Solution #3, swirl well.

7. Add 10 ml of Solution #4, mix well, the solution will turn opaque yellow-brown. If it turns a creamy white color the sugar concentration is too high. Dilute the sample so that the sugar will be below 2.8%, the upper limit of the test. Then proceed from step 1. A grayish white precipitate will form naturally.

8. Add 10 ml of Solution #5, mix well, solution will turn a deep purple-brown.

9. Titrate to a brownish cream color tinged with yellow, with Solution #6.

10. Note: The last ml must be titrated one drop per 3 or more seconds otherwise the endpoint will be overrun due the slowness of the reaction. It may be necessary to run a quick titration to get an idea where the endpoint will be, then rerun for accurate endpoint. The endpoint color changes are distinct and will be obvious with practice.

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Calculation

a = # mls of Solution #6 to titrate H_2O blank

b = # mls of Solution #6 to titrate wine sample

$$\frac{28}{a} (a - b) \times 0.1 = \% \text{ Reducing Sugar}$$

Multiply this result by dilution factor if necessary.

Note: 28 is what the result for the H_2O blank should be if all solutions and amounts are perfect, but the neighborhood of 29 is a more common result. 0.1 is the factor necessary to change from grams/liter (that what is titrated) to grams/100 ml or percent Reducing Sugar.

Reagents

Note; mix all chemicals at 20° C. Use only deionized H_2O.

Solution #1, $CuSO_4$

Place 41.92 gm $CuSO_4 \cdot 5H_2O$ in a 1 Liter volumetric flask. Add 10 ml of 1 N H_2SO_4, fill exactly to 1 Liter. Lasts forever.

Solution #2, Potassium-Sodium tartrate

Dissolve 250 gm K-Na tartrate$\cdot 4H_2O$ in 300 ml H_2O. Add 80 gm NaOH (pellet form) and fill to exactly 1 Liter in a 1 Liter volumetric flask. Lasts forever.

Solution #3, KI

Mix 300 gm KI with 100 ml 1 N NaOH, fill to exactly 1 Liter. Lasts forever.

Solution #4, H_2SO_4

Put 300 ml deionized H_2O in a 1 Liter volumetric flask, then add 175 ml concentrated H_2SO_4 slowly. Fill to 1 Liter mark then place in cold water. Fill with deionized H_2O to mark, cool to 20°C and fill exactly to mark. Lasts forever.

Solution #5, Indicator

Suspend 10 gm soluble starch in 40 ml cold deionized H_2O, add to 500ml of boiling H_2O. Boil for 5 minutes. Let cool, place in 1 Liter volumetric flask. To 400 ml of H_2O, add 20 gm KI and 10 ml 1 N NaOH. Add to flask containing starch solution. Invert flask only enough times to mix thoroughly (i.e. don't airate). Avoid shaking as it leads to excessive foaming. Fill to exactly 1 Liter. If there are stability problems use Mercuric Iodide in place of the KI.

Solution #6, Titrant

Place 13.777 gm Sodium Thiosulfate in a 1 Liter volumetric flask. Add 50 ml 1 N NaOH and fill exactly to mark. If the scale will not measure 13.777 gm exactly, then use 137.77 gm Sodium Thiosulfate plus 500 ml 1 N NaOH, fill to 1 Liter exactly. When ready to use dilute exactly 10 : 1 or 100 ml solution diluted to 1 Liter exactly.

General Notes: In Solution #2 the 80 gm of NaOH should also be corrected for impurity, and although it has NaOH in it, it has shown to be quite stable. Solutions #5 and #6 last for months if refrigerated, but if the water blank climbs above 30 then they should be suspected.

---

1 N H_2SO_4

Dilute 30 ml of Concentrated H_2SO_4 to 1 Liter. Standardize by titrating 15 ml H_2SO_4 to phenolphthalein pink endpoint with 1 N NaOH.

$$\frac{\text{mls NaOH} \times \underline{N} \text{ NaOH}}{\text{mls } H_2SO_4} = \underline{N}\ H_2SO_4$$

1 N NaOH,

40 gm (see below) pellet form NaOH, bring to exactly 1 Liter in volumetric flask. Titrate 15 ml NaOH with standard 1 N HCl, with phenolphthalein indiacator.

Use 40 gm if pure, but it never is so divide 40 by the purity listed on the bottle for the actual amount.

Example: if purity on bottle is 98.1 %

$$\frac{40}{.981} = 40.77 \text{ gm (actual amount to use)}$$

$$\frac{\text{mls HCl} \times \underline{N} \text{ HCl}}{\text{mls NaOH}} = \underline{N} \text{ NaOH}$$

Equipment

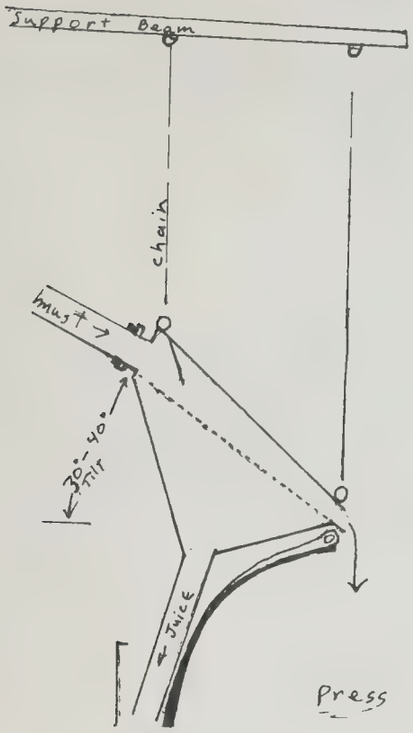
1-2 ml pipet
1-5 ml pipet
- 4-10 ml pipets
2-250 ml Erlenmeyer flasks
1-1 Liter volumetric flask
1-50 ml buret calibrated to 0.1 or 0.05
1-buret stand and clamp
1-hot plate
1-ice bath
boiling stones
- There are some plastic squeeze bottle measuring dispensers available from V.W.R. for about $6.50 which are adequate.

Chemicals

$CuSO_4 \cdot 5H_2O$
K-Na tartrate$\cdot 4H_2O$
KI, Potassium Iodide
NaOH, pellet form
Soluable starch
Sodium Thiosulfate
Concentrated H_2SO_4

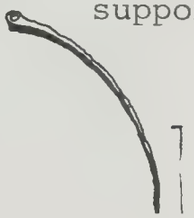
Next Issue: SO_2 Iodate-Iodide Method

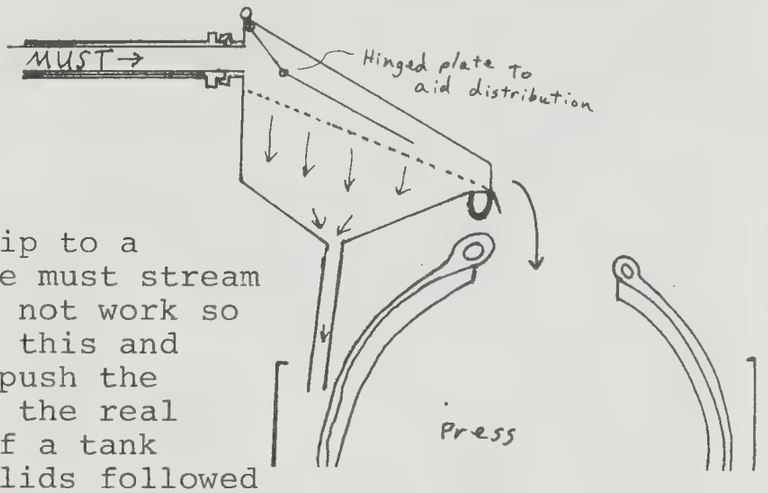
(this one is fast, exact, and the reagents are more stable)



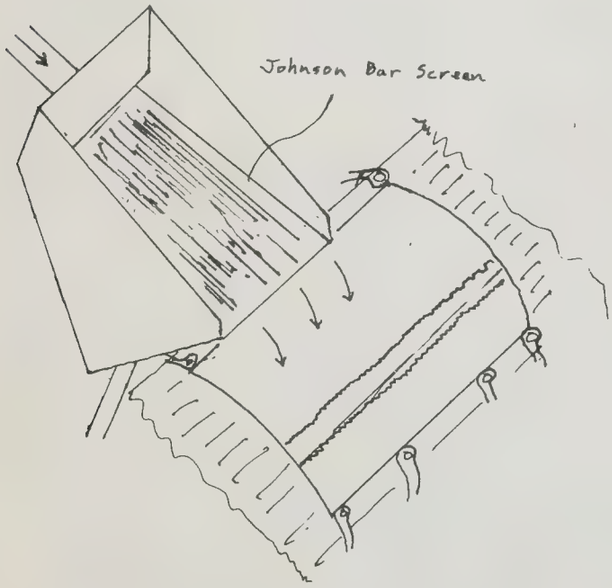
Build Your Own Dejuicer

The origin of these I don't know, but the people who have built these dejuicers keep using them. I was told Sebastiani had one more than five years ago, and they have been made commercially for some time (on a much grander scale). The design of figure 1 is in use at a small southern Napa Valley winery and uses two chains to support it, and adjust its inclination. Dan Lee of Jekel Vineyards had one built for himself and added the refinement of using the press door retaining pin through two loops for the front support. See figure 2 below.

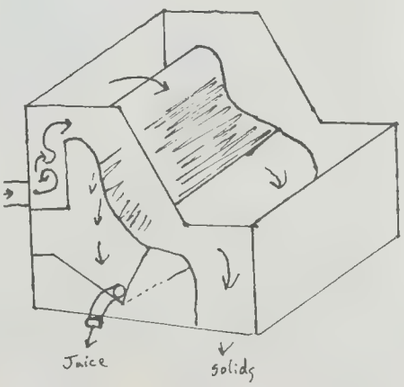




Dan also modified the distribution lip to a hinged panel which was to ride on the must stream and improve the action. Well it did not work so he removed it and mentions that both this and the above design requires someone to push the solids off the screen. He also says the real value is when one starts to press off a tank there is often an initial flow of solids followed by much of the juice in the tank; if going directly into the press the solids will line the walls and the juice will fill it. One then places the door, rolls it over and upon opening it, it's only 1/3 full of solids. The dejuicer, when functioning, stops this.



The screen is a Johnson Bar Screen which is the non-filling type, the space on back side is larger than the front and in the above designs runs parallel to the flow of the must. In the commercial designs it runs perpendicular to the flow and is tilted at a more extreme angle.



The commercial design also employs an entry reservoir to slow and evenly distribute the must over the entire face of the screen. Sorry the photos didn't come out, we will try to get one in next issue. A combination of the above ideas will probably give the best results. We welcome any input you may have on this and all subjects.

Maintaining Refrigeration Efficency

How to clean up corrosion in your refrigeration system and establish a regular maintenance schedule

The question has been raised about corrosion in refrigeration systems, and the eventual blockage of the coolant flow by corrosion caused scale. This blockage may occur at screens built into the coolant uptake, or in-line near the valves. Some of the early stainless steel tanks also had jets built into the jackets to aid even distribution of coolant, another point of blockage.

Both ethylene glycol and propylene glycol used in winery cooling systems will hydrolyze with time and oxygen exposure to form an acid. This acid then corrodes the metal and produces scale. This hydrolyzation is slow, but 1-2 years will show a definite effect on the pH, which will drop from pH 6 to pH 3 in a closed glass system. In a typical winery system the reactive metals will sacrifice themselves and the apparent pH change will be very little. The areas to examine for corrosion are the steel valves, the inside of the holding tank, and any other metal in contact with the coolant. Copper will rarely show corrosion, its being a noble metal, but its presence will accelerate corrosion of aluminum, galvanized metals, steel, and other less noble metals.

Should you decide the system needs cleaning;

1) Drain the entire system.

2) Water flush- if possible back flush to remove particulate matter.

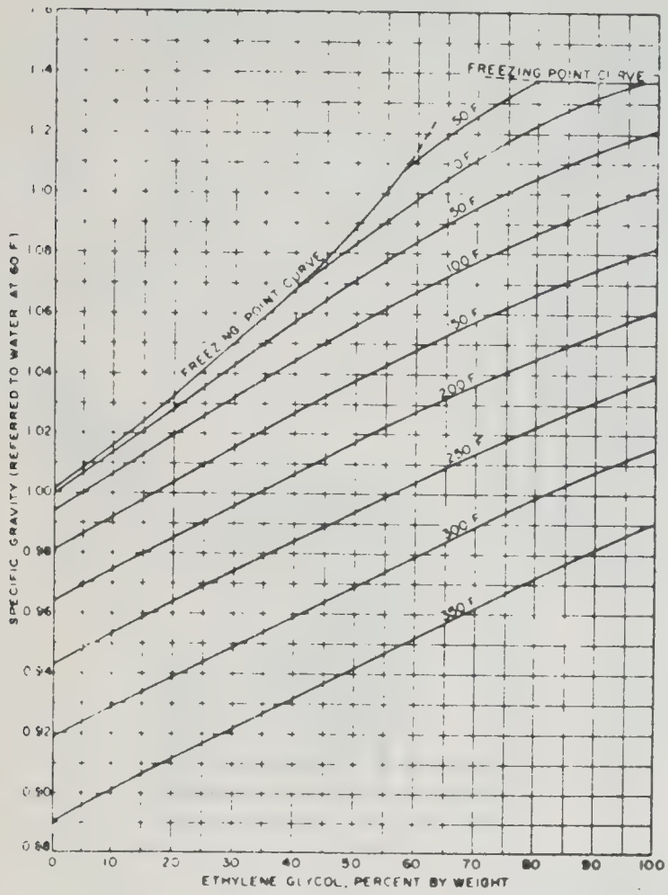
3) Clean with the product of your choice. The U.S. Air Force uses a Turco Chemical Co. product called 'Corogo'. Another product available through the U.O.P. Chemical Co. is called 'Unichem G'. these are both weak acids, generally sulfamic acid. Strong acids should be avoided.

4) Water rinse.

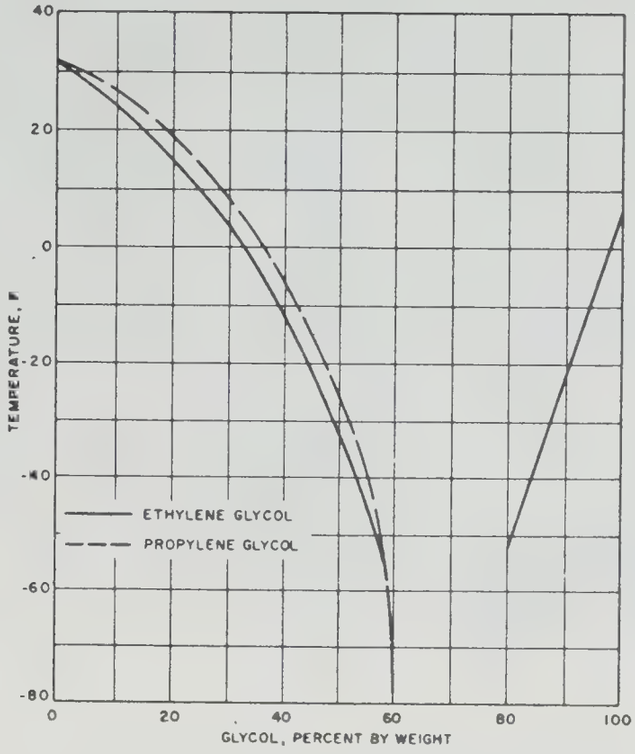
5) Refill with proper amount of glycol/water mixture. One can buy a glycol with the corrosion inhibitor already present, but if using a pure glycol/water mixture then to prevent further corrosion you must add an inhibitor. The product favored by, again, the U.S. Air Force is from the Nalco Chem. Co. called 'Nalco 39-L'. These inhibitors are composed of borax, for pH maintaince; a copper complexing agent; phenolphthalein for a color indicator; nitrite, for maintaining a reducing atmosphere; and silicates, for aluminum protection. Quality of the water for dilution must be considered, because water from some sources may contain corrosive elements which reduce effectiveness of the inhibited formulation. Surface waters classified as soft that are low in chloride and sulfate ion content (less than 100 ppm each) are preferred. Use of distilled, deionized, or condensate water should help avoid undesirable effects of poor quality water.

A very important factor in maintaining a glycol solution in relatively noncorrosive condition for a long period is the inhibitor monitoring and maintenance schedule. This cannot be overemphasized. However, a specific schedule is not always easy to establish, since inhibitor depletion rate depends on the particular conditions of use. Analyses of samples immediately after installation, after 2 to 3 months, and after 6 months should establish the pattern for the schedule. An indefinite service life, however, should not be expected.

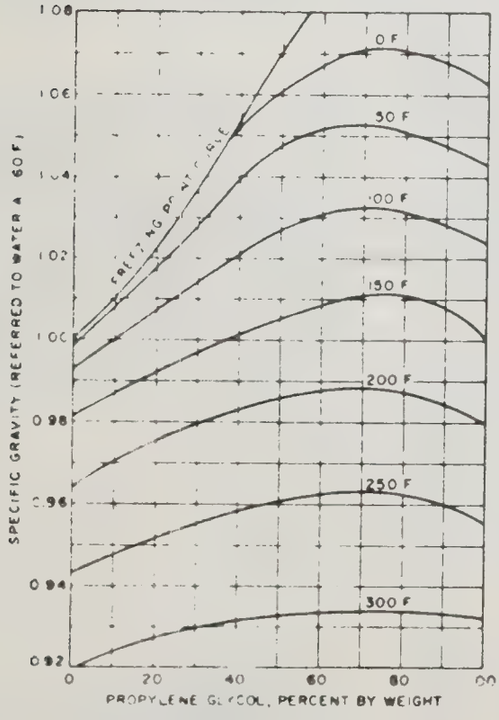
Coolant Properties



Specific Gravity of Aqueous Solutions of Ethylene Glycol



Freezing Points of Aqueous Solutions of Ethylene Glycol and Propylene Glycol



Specific Gravity of Aqueous Solutions of Propylene Glycol

Home Fermenter's Digest

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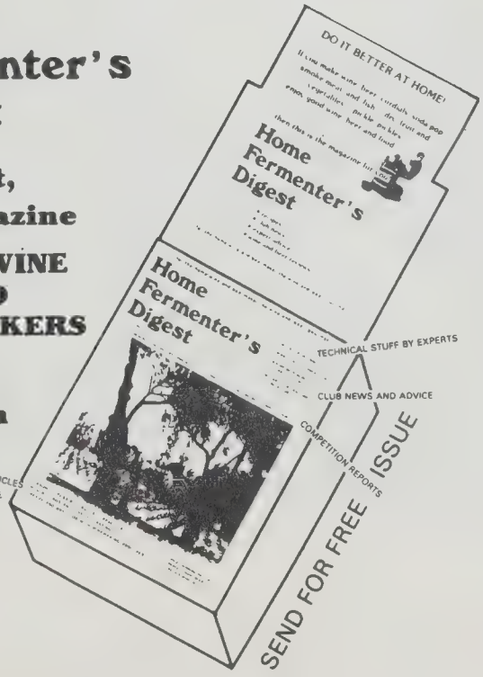

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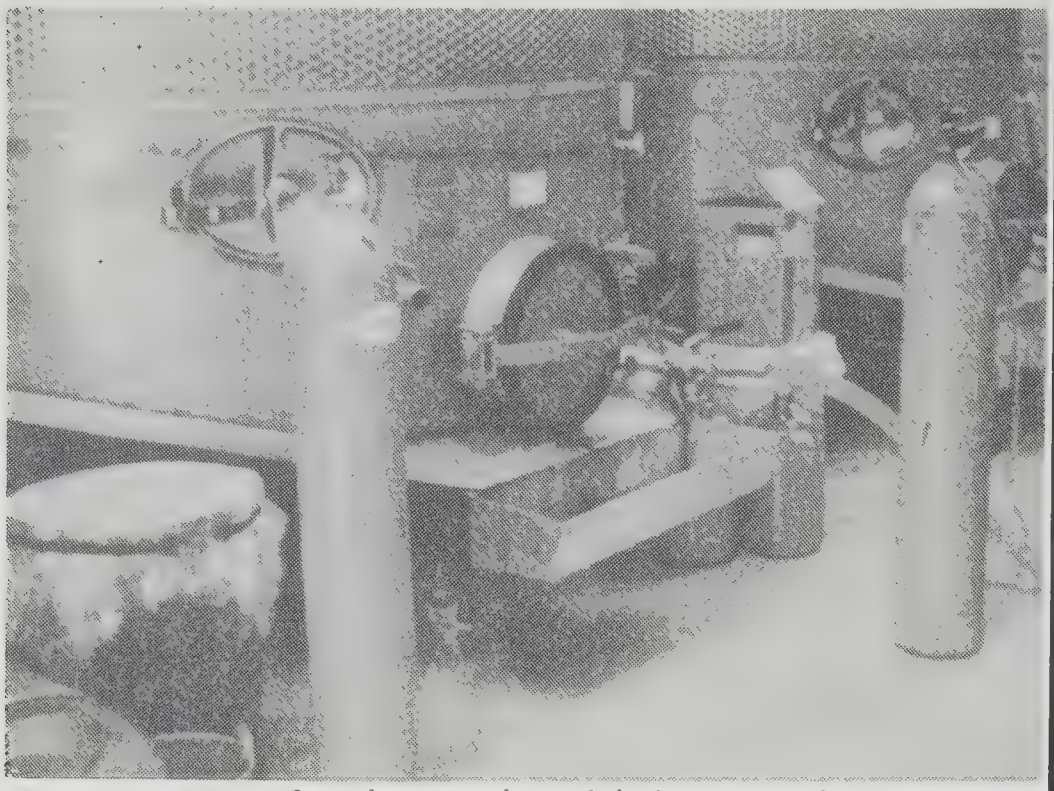
If you have any practical solutions to ease winery work or improve quality, send a description and picture. We all benifit from information exchange.



Parsons Creek Winery in Ukiah, Ca. is located in a commercial warehouse. The need to keep the floors dry and the neighbors happy has brought about the use of these condensation drain pans. A side benifit is owners Jess Tidwell and Hal Doran are among the minority of cellar workers with dry feet.

Navarrow Winery near Philo, Ca. has it's own custom built field crusher driven by the tractor power take-off. Early problems came from improper gear ratios; this problem sol-solved they are pleased with current results. This is similar to the one listed in the classifieds by Wine and the People except the one for sale has its own power source.

Classified

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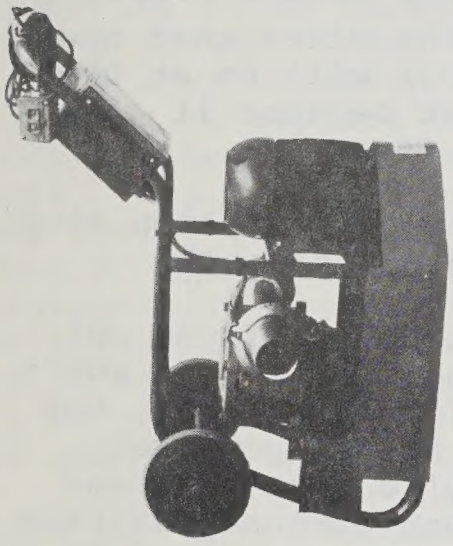

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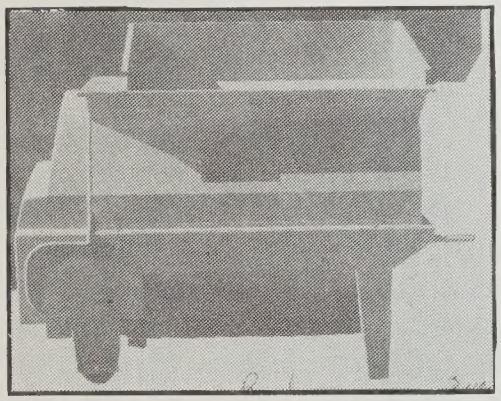

If you are considering the purchase of winery equipment or would like to receive our 1980 Winery Catalogue, call

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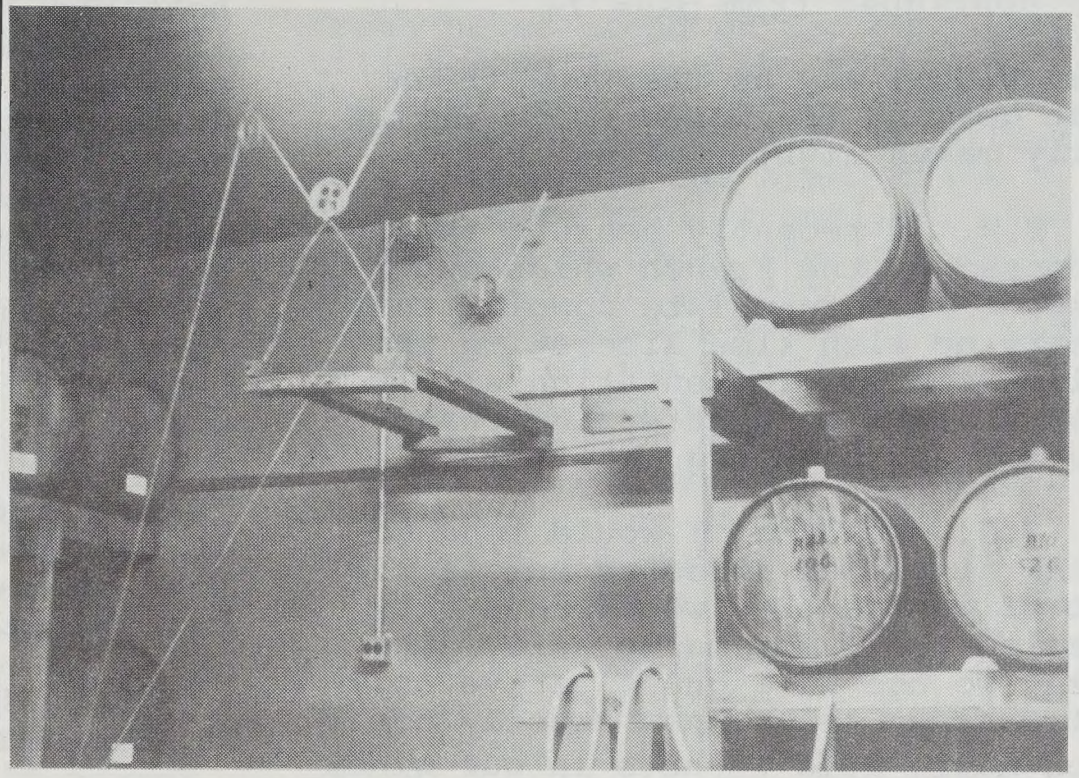
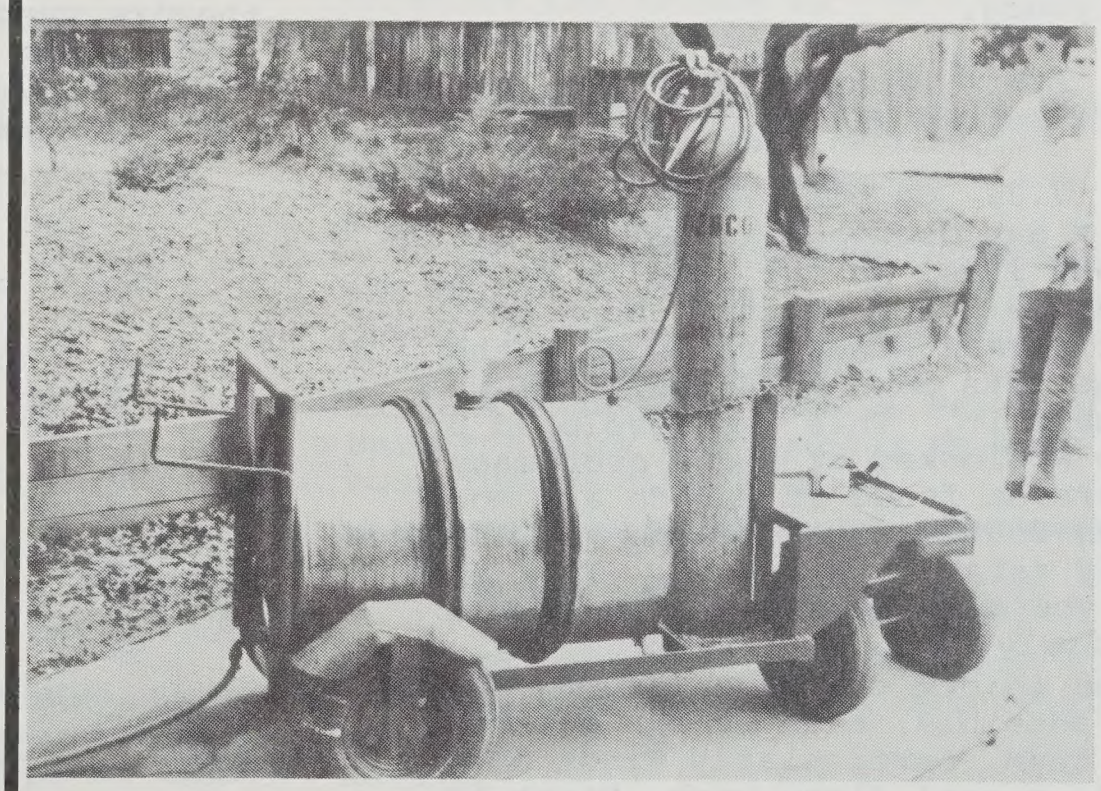


Husch Vineyards in Mendocino County, Ca devised this simple sling for removing barrels from the third tier, It clips to the end of the rack. Winemaker Al White suggests you don't use it with full barrels.



With as many barrels as Fetzer Vineyards has they need this low pressure tank for topping. Winner of the Salvage Technology Award for this issue.

-interview with Josh Jensen
continued from page 7-

traditional way as they now think that getting the wines to go through early makes lighter wines.

P.W. I recently heard a theory proposed by the French which suggests a citrate-malate complex that breaks up with time liberating the malic acid for fermentation slowly, even as late as next spring; have you noticed anything like this?

J.J. Well no, I would tend to think it was an arrested malolactic but of course they would have very precise tests for malic acid. The assay we use is a quantitative enzymatic assay so we know exactly how much malic acid we have in our wines. The reason being that I don't like to leave our whole years production at 20°C for the winter, it's risky and expensive so we stay on top of it so we can get the SO_2 in. Some recent research indicates the bacteria are stronger when the wine is young.

P.W. Perhaps they need some particulate matter.

J.J. Oh yes, we do only a 3 or 4 day decuvage (settling of the gross lies) as the lies is really where all the bacteria hang out. Our normal procedure is once the wine gets down to 40 mg/100ml we double it. This was developed by Leo McCloskey at Ridge over many years; he found if you do any more than doubling the volume you actually retard its action. It's best if you add the non-active to the actively fermenting stuff. We like to get the wine through as soon as possible, then we can get SO_2 in them, particularly Pinot Noir. It's a real dirty wine, Pinot is the red wine in California most wineries want to filter because you make a wine very cleanly, get it through malolactic early, lots of time to settle it, don't filter or fine it and bottle it a year and a half after crush and you'll have sediment already a year after bottling. It's a wine that throws it's sediment over a 20 year time period instead of a 1 year period. It just continues to drop crud out and so many people like their wines shining clean and sterile and don't want to have any sediment. Here in the States wineries tend to filter all their wines, red wines! That's dumb, but if a winery is going to have a policy to filter all their wines, well, they'll filter all their wines, but if they have a policy of filtering only the wines that need it then Pinot Noir will be at the head of that list because it will have a sediment first.

P.W. Does that filtration stop it from throwing a sediment?

J.J. Yes it does, if you put it through a tight filter you won't get a sediment for five years, but you wreck Pinot Noirs, you just wreck them. They're just kiss-ass wines and a french burgundy drinker expects a sediment there, in fact they're suspicious if there's no sediment in a two or three year old wine. They know something's fishy.

RATIO BETWEEN TONS OF GRAPES AND GALLONS OF WINE

Gallons Wine Per Ton of Grapes	*Gallons Per 100 Tons*	*Tons of Grapes Required for 1,000 Gallons Wine*
70	7,000	14.3
75	7,500	13.3
80	8,000	12.5
85	8,500	11.8
90	9,000	11.1
95	9,500	10.5
100	10,000	10.0
150	15,000	6.7
155	15,500	6.45
160	16,000	6.25
165	16,500	6.1
170	17,000	5.9
175	17,500	5.7
180	18,000	5.55
185	18,500	5.4
190	19,000	5.3
195	19,500	5.15
200	20,000	5.0

DATA ON WINERY HOSES

Size Hose Inside Diameter Inches	*Cross-section Square Inches*	*Volume Per 25-Foot Length — Cubic Inches*	*Gallons*
1	0.785	235.5	1.0
1½	1.87	561.0	2.4
2	3.14	942	4.1
2½	4.91	1,473	6.4
3	7.07	2,121	9.2
4	12.6	3,768	16.3
5	19.6	5,892	25.5

In the interest of preserving and perhaps learning from the past I peruse through wine books long forgotten and have found these remedies for "The changes produced by acetic fermentation", printed in The Wine Press and the Cellar by E.H. Rixford, 1883.

"Mr. Boireau prefers the carbonate of magnesium to any other alkaline substance, because it affects the wine color less, and does not give bitterness to the pricked wines, nor render them unwholesome as do the salts formed by alkalies with a potash, lime, or soda base.

Brandy is added to these wines in order to replace the alcohol lost in the production of acetic acid. The preference given to milk for fining is founded upon the fact that it is alkaline, and therefore assists in removing the acid flavor of the wine while clarifying it. It is alkaline, however, only when it is fresh; skim-milk a day old is acid, and should not be used.

Machard's Treatment.-Machard says the most sucessful treatment for sour wine employed by him, is that founded upon the affinity of vegetable substances for acids, and that he has succeeded beyond his hopes in completely removing the acid from a wine which was so sour that it could not be drank without seriously disagreeing with the person drinking it. This is his method of proceeding.

He formed a long chaplet, six feet or so in length, by cutting carrots into short, thin pieces, and stringing them on a cord. This he suspended in the wine down through the bung for six weeks, and at the end of the time he did not find the least trace of acetic acid thereby accomplishing what he had for a long time in vain attempted. He says that this the only treatment that succeeded with him, and he confidently recommends it to others. But he advises that the carrots be left in the wine at least a month and a-half, protecting the wine from the air. And he says that there is no danger of injuring the wine by long contact with the carrots, or by using a large quantity of them."

Two other methods are interesting, one suggests putting a loaf of fresh baked bread on the bung hole till it cools, thereby absorbing the acid into the bread. One then then racks the wine into a sulfured cask, repeating the bread trick till no more acid is smelled. The other says to roast the meat of 60 walnuts per 100 gallons and put them into the wine while still warm, fine and rack when clear

A half pound roast wheat will produce the same effect.

He also gives the following method for using marble dust.

mix up the following

white marble	12 lbs
sugar	18 lbs
animal charcoal, washed	6 lbs

Take of this from 3 to 6 lbs. to 100 gallons of wine, according to the degree of acidity; dissolve it in two or three gallons of the wine and pour it into the cask. Shake it well, and continue to agitate from time to time for 24-26 hrs. till the wine has lost its acidity taking care to leave the bung open to allow the escape of -he carbonic acid which is generated. At the end of the time, add of cream of tartar one-half as much as the dose employed; shake again and at the end of five or six hours draw the wine off and fine it

We of course can not endorse the use of anything which might appear in this column, and present it only for entertainment.

My thanks to Charles Meyrs of Harbor Winery for loaning me this most instructive book.

Next Issue

State of the Art: Plastic Tanks and other stainless substitutes.

An Overview on Current Filtration Techniques, this area is changing very fast, both in hardware and principles.

Three Methods of Cold Stabilization which work in less than two days.

Plus Much Much More.

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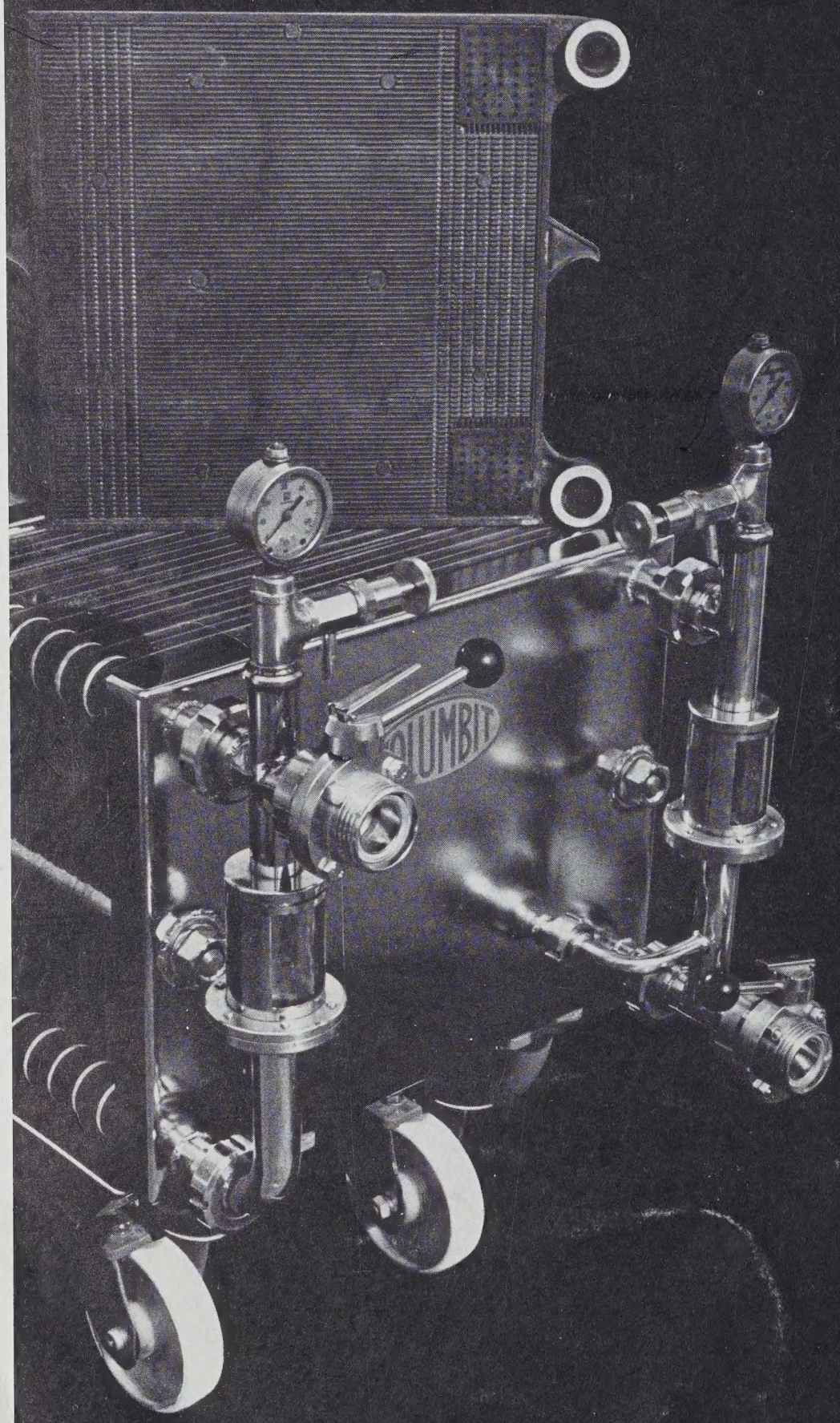

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